

(12) **UK Patent Application** (19) **GB** (11) **2 253 193** (13) **A**

(43) Date of A publication 02.09.1992

(21) Application No 9201689.8

(22) Date of filing 27.01.1992

(30) Priority data

(31) 4105996

(32) 26.02.1991

(33) DE

(71) Applicant

Stein & Co GmbH

(Incorporated in the Federal Republic of Germany)

Wulfrather Strasse 47-49, 5620 Velbert 15,
Federal Republic of Germany

(72) Inventors

Klaus Stein
Heinz Kaulig

(74) Agent and/or Address for Service

Venner Shipley & Co
368 City Road, London, EC1V 2QA, United Kingdom

(51) INT CL⁵

B60B 19/06 // B60C 7/00

(52) UK CL (Edition K)

B7C CEF CGG
U1S S1233

(56) Documents cited

GB 2153757 A GB 1577306 A GB 1524472 A
GB 0723745 A EP 0114794 A2 US 4170384 A

(58) Field of search

UK CL (Edition K) B7C CCK CEF CEX CGG
INT CL⁵ B60B, B60C

(54) **Roller for floor cleaning apparatus**

(57) In a roller for floor cleaning apparatus, for example vacuum cleaners, a band 9 of flexible material provides a projecting running surface and is held in a groove-shaped recess 8 in the roller body (5, Fig 1), a space 10 being formed below the running band 9 to accommodate deflection thereof. The roller body is in two parts joined together by means of spokes and/or bars.

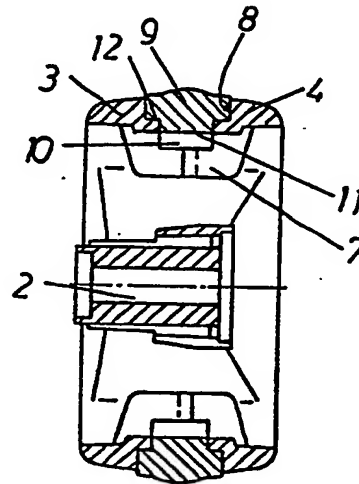


FIG.3

GB 2 253 193 A

FIG. 1

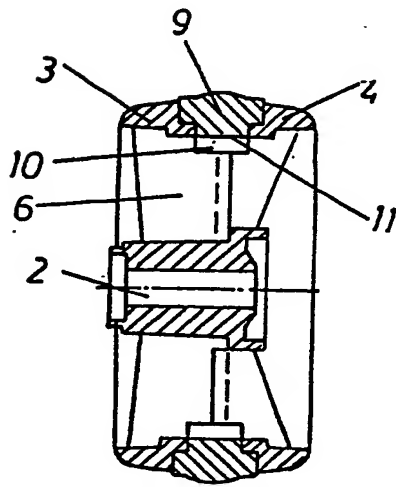
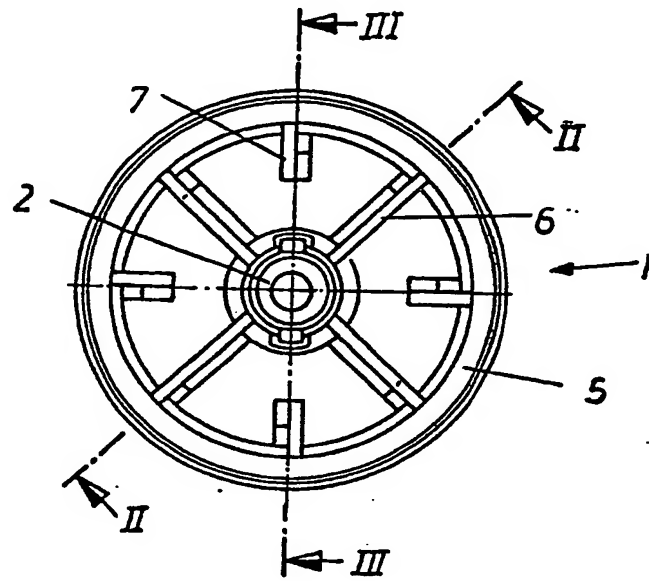


FIG. 2

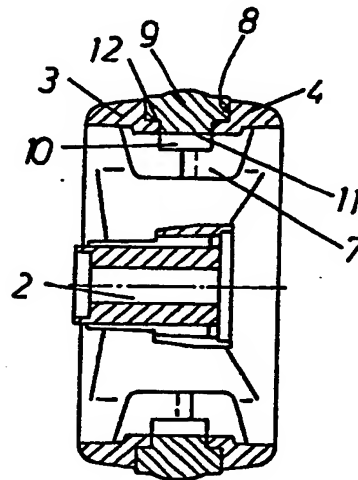


FIG. 3

- 1 -

ROLLER FOR FLOOR CLEANING APPARATUS

5 The invention relates to a roller for floor cleaning apparatus, especially for vacuum cleaners for guiding the brush head or suction brush head and keeping it at a distance from the floor.

10 Rollers of this kind are used in order to allow a relatively light backwards and forwards movement of the apparatus. The rollers are usually made of a hard material which means that when they travel over hard floors, especially stone floors with joints, severe impacts are transmitted to the cleaning apparatus and loud
15 noises are also produced.

It is known to provide rollers with a soft, flexible running band for the purposes of damping and providing spring resistance. It has been found in this connection
20 that sufficient results are obtained when the band is relatively soft and thick. However, in arrangements of this kind, the band is subject to considerable wear and marks appear on the floor. When the apparatus is at a

standstill for relatively long periods there is additional permanent deformation of the band, this again leading to erratic running of the apparatus.

5 These disadvantages are eliminated by using an abrasion-proof band material, thereby avoiding permanent deformation. However, such a material is not very flexible so, in the case of all over contact with the roller body, the damping effect is then also very slight.

10

 The object of the invention is to provide a roller which, by means of simple measures, allows for a good degree of damping with abrasion-proof materials and guarantees efficient operation by means of damped running performance
15 on hard floors and mark-free use on all floors.

 According to the invention, there is provided a roller for floor cleaning apparatus such as vacuum cleaners comprising a roller body having a running band of flexible
20 material therein to provide a projecting running surface, said band being held in a recess in the roller body, a deflection space being located below the inserted running

band and the running surface of the running band being formed by an external projecting surface.

As the inserted running band can spring into the spring deflection space situated below its base, the prevailing conditions can be taken into consideration. In a preferred embodiment the groove-shaped recess is stepped to hold the running band in the roller body.

10 It is furthermore proposed that the roller body is formed by two partial elements joined together by means of spokes and/or bars.

A preferred embodiment of the invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a side view of a roller of the invention;

20 Figure 2 is a section along the line II-II of Figure; and

Figure 3 is a section along the line III-III of Figure 1.

5 The drawings show a roller 1 having a hub 2 which consists of two corresponding parts 3,4 assembled together to form roller body 5, the parts 3,4 being connected to one another by means of spokes 6 and 7.

10 A groove-shaped recess 8 is formed in the partial plane of the parts 3,4 to receive a flexible running band 9. A spring deflection space 10 is located below base 11 of the band 9. In the illustrated arrangement the groove-shaped recess 8 is provided with a step 12 for holding the running band 9 which is also stepped in a corresponding manner.

15 The running band 9 projects from the roller body 5 to form a projecting rounded surface. This projecting length is dimensioned in such a manner that edges or sills in the floor do not penetrate through to the hard roller body 5.

20 By virtue of this design it is possible to use a band material with a low degree of wear and high recovery rate which provides a high damping effect, as the base 11 of

1

- 5 -

the running band is not supported and can deflect freely,
such deflection can be accommodated by the spring
deflection space 10.

5

CLAIMS

- 5 1. A roller for floor cleaning apparatus such as vacuum cleaners comprising a roller body having a running band of flexible material therein to provide a projecting running surface, said band being held in a recess in the roller body, a deflection space being located below the inserted running band.
- 10 2. A roller according to claim 1 wherein the recess is stepped.
- 15 3. A roller according to claim 1 or claim 2, wherein the roller body is formed in two parts joined together by means of spokes and/or bars.
- 20 4. A roller for floor cleaning apparatus, especially for vacuum cleaners for guiding the brush head or suction brush head and keeping it at a distance from the floor, consisting of a roller body having a hub, wherein the surface of the roller body is formed in a section by a running band of flexible material in the form of a

- 7 -

projecting running surface and is held in a groove-shaped receiver of the roller body, the groove-shaped receiver having a spring deflection space below the inserted running band and the running surface of the running band being formed by an external projecting surface.

5

5. A roller for floor cleaning apparatus substantially as herein described with reference to the accompanying drawings.

10

Patents Act 1977**- 8 -****Examiner's report to the Comptroller under
Section 17 (The Search Report)**

Application number

9201689.8

Relevant Technical fields

(i) UK CI (Edition K) B7C (CEF, CEX, CGG, CCK)

(ii) Int CL (Edition 5) B60B, B60C

Search Examiner

C J DUFF

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

3 APRIL 1992

Documents considered relevant following a search in respect of claims

1-5

Category (see over)	Identity of document and relevant passages		Relevant to claim(s)
Y	GB 2153757 A	(SMRT) see Figure 4	3
Y	GB 1577306	(KORNYLAK) see Figure 1	2
Y	GB 1524472	(GOODYEAR) see Figures 2,3,5	2
X	GB 723745	(WINGFOOT) see Figure 1	1,4
Y			2,3
X	EP 0114794 A2	(ARTHUR MARTIN) see	1,4
Y		Figure 1	2,3
Y	US 4170384	(ROTHEISER) see Figures 1-3	3

Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).

DOCKET NO: ZTPOIP15110

SERIAL NO: _____

APPLICANT: E. Bott et al.

LERNER AND GREENBERG P.A.

P.O. BOX 2480

HOLLYWOOD, FLORIDA 33022

TEL. (954) 925-1100

THIS PAGE BLANK (USPTO)